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USSR Report

AGRICULTURE

No. 1328

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MAJOR CROP PROGRESS AND WEATHER REPORTING

PREPARATIONS FOR 1982 CROPS IN KRASNODARSKIY KRAY

Moscow SEL'SKAYA ZHIZN' in Russian 21 Nov 81 p 1

/Article by Yu. Semenenko, correspondent of SEL'SKAYA ZHIZN', Krasnodarskiy Kray: "On the Winter Field"/

/Text/ Not many days have passed since the last combines left sugar beet plantations and plowing tractors, having completed fall plowing, were taken for repairs. However, fields have not become empty. The kray's grain growers efficiently utilize every hour to obtain a high harvest next year. Winter crops are objects of special concern.

Even before dawn V. S. Danilov, chief agronomist of the Nasha Rodina Kolkhoz in Gul'kevichskiy Rayon, hurries to the agrochemical complex. Here, in addition to a fertilizer warehouse and installations for the preparation of mineral fertilizers for application to soil, there is a concrete runway. A special link works at the complex and the agronomist personally sees to it that carefully ground and sifted fertilizers are loaded on the airplane so that every plot may receive the prescribed dose of nutrients.

Machine operator Aleksey Sysov quickly handles the pouring of ammonium nitrate. A stacker with quite a capacious hopper reequipped by local workers is mounted on his tractor. After a few minutes the light silvery machine bounces into the air. The fields on the farm are vast with long runs. Pilots Sergey Bulanov and Viktor Timofeyev and flight mechanic Boris Fedorov have room to turn around. Fertilizers are placed on arable land in an even layer.

"Our winged helpers at first applied complex liquid fertilizers to the fall field, treated winter crops against weeds with atrazine and now are topdressing sown areas," says the chief agronomist.

On the kolkhoz winter grain crops were sown on 4,460 hectares, including wheat on 3,600 hectares. Grain pressing and ordinary seeders were used for this, the latter for crossed diagonal seeding with subsequent soil packing.

Grain crops are developing normally, despite the fact that during the first half of the fall, owing to the shortage of moisture in soil, nitrification processes were unsatisfactory. The application of ammonium nitrate proved to be very opportune. It was followed by abundant rains, which immediately improved the assimilation of nutrients by plants.

The past frostless winter and the dry warm weather in summer caused the propagation of small rodents on perennial grass areas and in forest belts in September and October. In November they began to spread to winter crops. However, the kolkhoz, foreseeing this, treated all sown areas with chemical or biological preparations. The colonization of pests was suppressed and now nothing hampers the development of plants.

All the kray's farms are engaged in the care of crops. Novokubanskiy Rayon, which is located in the dry east and, moreover, in the very center of the windy "Armavir Corridor," has obtained high stable harvests year after year. Innovative agrotechnological methods and a creative approach to the performance of every operation are set against the whims of nature here. The people of Novokubanskiy Rayon have now again implemented a set of measures for the protection of fields against erosion and have made efforts to apply more mineral fertilizers for basic soil cultivation and, at the same time, with seeds. After the appearance of sprouts they again inspected fields and on the basis of this refined the tactics of work.

"We are now topdressing winter crops with ammonium water from airplanes and by the ground method," says I. M. Derevyashkin, chief agronomist of the rayon administration of agriculture. "This dosage, along with application before and during sowing, will provide every hectare with a total of 45 kg of nitrogen. First of all, we give mineral fertilizers to weakened sprouts and winter crops placed after sunflowers and some other crops, after which few nutrients remain in soil. This will enable crops to quickly 'catch up' and to tolerate winter well."

Winter crops now occupy 1.74 million hectares in the kray. In order that the ear may be full-weight, the results of this and previous years were analyzed most attentively and an inspection of the condition of crops was made on the entire area. Agrotechnical methods were corrected with due regard for the obtained data and conclusions. First of all, the schedules of winter wheat and barley sowing were observed more accurately--depending on the predecessor--and attention was drawn to an elimination of their overfeeding with nitrogen and to an increase in the application of phosphorus fertilizers. Furthermore, for the first time granulated superphosphate was locally applied to rows on the entire area of the winter wedge. Nitrogen fertilizers were applied to 250,000 hectares before sowing. This enabled wheat and barley, if one can use the expression, to make a good running start.

A total of 132 agricultural aviation airplanes now operate on the kray's kolkhozes and sovkhozes. As soon as soil dried up after abundant rains, hundreds of fertilizer sowers and spreaders of mineral fertilizers appeared on fields. A total of 450,000 hectares will be topdressed from the air and by the ground method in November and December, when above-zero temperatures predominate and winter crops continue to vegetate. The people of Kuban' try to prevent the weediness of fields and carefully carry out work on the protection of crops against pests. Chemical and biological measures have been implemented on 650,000 hectares.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

CURRENT PROBLEMS OF URAL AGRICULTURE DISCUSSED

Moscow IZVESTIYA in Russian 5 Mar 82 p 1

/Article by V. Biryukov, IZVESTIYA correspondent: "The Ural Field"/

/Text/ Two adjacent oblasts--Sverdlovskaya and Permskaya--enclose the vast nonchernozem zone of the Russian Federation from the east. Their kolkhozes, sovkhozes and subsidiary farms sow grain crops on almost 2 million hectares, occupy sizable areas with other agricultural crops and are able to significantly meet the needs of the population of their oblasts for bread, potatoes, vegetables and meat and dairy products.

Last year was not easy for the eastern outskirts of the nonchernozem zone. The drought did serious damage to agriculture. In Permskaya Oblast there was a large deficiency of the harvest of grain, potatoes, vegetables and feed for livestock as compared to productive years.

Farms in the Middle Urals were in a somewhat more favorable position. They gathered a grain harvest not bad for local places and overfulfilled the plan for the sale of grain, but remained in debt with respect to potatoes and vegetables.

However, when analyzing last year's results, one notes that under the complex conditions farms worked differently.

The practice of advanced grain sowing rayons in the Middle Urals--Pyshminskiy, Talitskiy and Sysertskiy--and in the Kama area--Permskiy, Kungurskiy and Solikamskiy--gives reason to say that the introduction of advanced methods of agrotechnology and of scientific methods of labor organization in farming is of tremendous importance. During the 10th Five-Year Plan 14 kolkhozes and sovkhozes in the above-mentioned rayons gathered 40 to 45 quintals of grain per hectare on large areas. Such a sovkhoz as Borodulinskiy in Sysertskiy Rayon obtained an average of 51 quintals per hectare from 2,300 hectares, the experimental production farms of the Ural Scientific Research Institute of Agriculture, up to 45 quintals per hectare from 11,000 hectares and the Savinskiy Sovkhoz in Permskiy Rayon, 42 quintals per hectare from the entire grain wedge. Last year these farms also grew quite a high harvest.

The yield of grain crops throughout these two oblasts also seems quite contrasting. It declined in Sverdlovskaya Oblast, but not much, while in Permskaya Oblast the grain harvest per hectare dropped by almost one-half and the output of potatoes, vegetables and grass per hectare was also lowered more sharply.

These results have become a subject of discussion in both oblasts. The necessary conclusions are drawn from them. The agronomical service and production organizers have closely studied the experience of advanced farms, while preparing themselves for spring, and in their work are also guided by the recommendations of scientific institutions. The success of this endeavor depends on an exemplary performance of all field and, primarily, spring operations.

However, is everything ready on farms in the eastern nonchernozem zone?

It is well known that yield largely depends on the level of seed production and on the quality of seeds. For example, Ural scientists believe that every farm should have two or three varieties of grain crops differing in the length of the vegetative period in production. Unfortunately, this requirement is not always met.

Whereas in Sverdlovskaya Oblast by the beginning of March the entire seed stock was prepared, there was a different picture on kolkhozes and sovkhozes in the Kama area. A total of 36 percent of the seeds placed in storage were substandard in terms of germination and dockage. Only 17 percent of the seeds belonged to the first and second category.

Planned strain renovation is not carried out in Suksunskiy Rayon, where a large elite seed producing farm was established at the base of the Kolkhoz imeni Dem'yan Bednyy. Even now one-third of the grain area is to be occupied with nonregionalized varieties.

On the low-humus soil of Ural regions, which has a high and average degree of acidity, the quantity of the harvest is largely determined by a skillful organization of field fertilization, correct combination of the application of organic and mineral fertilizers and mandatory liming. However, if we take liming, in Sverdlovskaya Oblast it is annually carried out on less than 100,000 hectares and in the Kama area, on 150,000 to 170,000. In the opinion of specialists, this is only one-half of the area that should be limed annually.

It should be stated that many chemical industry enterprises disrupt the deliveries of mineral fertilizers for these oblasts. For example, the Chardzhou Chemical Plant failed to load more than 17,000 tons of ammophos for the Kama area and the Krasnoural'sk Copper Smelting Combine, 4,200 tons of double granulated superphosphate. Bashkiriya's enterprises did not deliver thousands of tons of urea. The Bereznikov plants subordinate to the oblast center are among the incorrigible debtors. They failed to deliver about 10,000 tons of mineral fertilizers.

In order to somehow make up for the shortage of mineral fertilizers, the executive committees of the Sverdlovskaya and Permskaya Oblast Soviets of People's Deputies worked out strict schedules for the delivery of organic fertilizers to fields. Mobile fertility detachments are being established in rural regions. More than 400 such detachments now operate in the two oblasts. This imbues us with confidence that fields will now receive the necessary quantity of organic fertilizers.

Rural workers in Ural regions now face another acute problem, that is, the organization of feed production on an industrial basis. The shortage of feed procured last year, which was unproductive, had an effect on the productivity of livestock: Milk yields were lowered and the average daily weight gain of feeder livestock was reduced. Farms are forced to transport straw from other oblasts in the country.

Unregulated feed getting links and brigades are now being organized in the regions of the Middle Urals and the Kama area. Areas sown with fodder crops are assigned to them. They service shops for feed preparation and feeding on animal husbandry farms. More than 1,000 such subdivisions are to be established in the Middle Urals and the Kama area.

Rural workers in Sverdlovskaya and Permskaya Oblasts undertook high socialist obligations in honor of the 60th anniversary of the formation of the USSR. In order to fulfill them, the efforts of both those that work on land and those that are partners of farmers will be needed.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

BRIEFS

ORGANIC FERTILIZER APPLICATION--Krasnodar, 14 Dec--In accordance with the decision of the kray party committee and the kray executive committee December was proclaimed a shock month in the delivery and application of organic fertilizers to soil in Kuban'. Fields will receive no less than 4 million tons of manure. Fertility detachments, which deliver 130,000 to 140,000 tons of humus for next year's harvest every day, now operate on every kolkhoz, sovkhoz, interfarm association and enterprise of the Kray Agricultural Equipment Association and of the Kray Scientific Production Association for Agrochemical Services for Agriculture. Since the beginning of the year more than 28 million tons of humus have been delivered. Workers in Adygeyskaya Autonomous Oblast and Kanevskiy, Kushchevskiy, Krasnoarmeyskiy, Leningradskiy and some other rayons have already delivered more than 1 million tons of valuable fertilizers to fields. In all the people of Kuban' will now transport about 32 million tons of organic fertilizers. [By Yu. Semenenko] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 15 Dec 81 p 1] 11,439

SEED PREPARATION--Krasnodar--Kuban' farms prepared the seeds of grain and pulse crops and of perennial and annual grasses for sowing on the entire spring field area. In particular, the Pobeda Kolkhoz in Kanevskiy Rayon, the Kolkhoz imeni Krupskaya in Ust'-Labinskiy Rayon, the Druzhba Kolkhoz in Tbilisskiy Rayon and others distinguished themselves. The fully met the need for the preparation of the seeds of all spring crops for sowing. Quality certificates were issued for every batch. Farms in the Azov area, the right bank of the Kuban' River, the Taman Peninsula and Adygey prepared rice seeds for the entire sown area. [Text] [Moscow GUDOK in Russian 5 Dec 81 p 1] 11,439

CARE OF WINTER CROPS--Rostov-on-Don, 4 Dec--The oblast's farmers are taking advantage of the fine days to care for winter crops. Mineral fertilizers are being applied to them and fields are being treated against the cereal leaf beetle. The work of all brigades was organized in a highly productive manner on kolkhozes and sovkhozes in Kagal'nitskiy, Veselovskiy, Oktyabr'skiy, Semikarakorskiy, Krasnosulinskiy and Morozovskiy Rayons. They have already fulfilled the assignments for the application of mineral fertilizers to areas sown with winter crops. [By Yu. Maksimenko] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 5 Dec 81 p 1] 11,439

SNOW RETENTION--Kazan', 25 Jan--Abundant January snow falls covered the fields with a thick white blanket. Trying to retain moisture until spring, farmers in the autonomous republic are actively retaining snow. Special attention is paid to slope land and fields located in a woodless locality. Kolkhozes and sovkhozes in Kuybyshevskiy, Tukayevskiy, Aktanyshskiy, Chistopol'skiy, Laishevskiy and other rayons place snow embankments on hundreds of hectares every day. Repeated ridging has already begun on a number of farms. In Drozhzhanovskiy Rayon snow is retained by means of guards on large areas. [By V. Goncharov] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 26 Jan 82 p 1] 11,439

SHIPMENT OF CORN SEEDS--Ordzhonikidze--Calibrating plants in North Osetiya have begun a mass shipment of high-grade and hybrid corn seeds today. The preparation of high-quality seeds in the autonomous republic has been transferred to the flow system. This enables the collectives of enterprises of the grain product administration to fill the orders of the country's corn growers accurately on the dates scheduled. Before the beginning of spring field operations calibrating plants in North Osetiya will ship about 90,000 tons of first-category seeds to farms in 36 oblasts, krays and republics in the country. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 29 Jan 82 p 1] 11,439

FERTILITY DETACHMENTS--Makhachkala, 17 Dec--About 200 fertility detachments of the republic's kolkhozes and sovkhozes transport organic fertilizers to fields for spring crops and feed winter crops. Machine operators in Babayurtovskiy Rayon overfulfilled the plan for the application of local fertilizers to soil 1.5-fold. Twenty detachments operate according to the principle of brigade contract in Khasavyurtovskiy Rayon. They delivered 50,000 tons of fertilizers to fields. Grain growers in Kizilyurtovskiy Rayon are also concerned with an increase in the earth's productive strength. This year they obtained 34.6 quintals of grain per hectare and in the second year of the five-year plan they are to increase the yield of grain crops to 40 quintals. [By N. Komissarov] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 18 Dec 81 p 1] 11,439

ACCUMULATION OF WINTER MOISTURE--Kuybyshev--The abundant snow falls that occurred in the Volga area recently enabled the oblast's farmers to activate the work on the accumulation of winter moisture for the future harvest. Snow is now being retained in Volzhskiy, Kinel'skiy and Klyavlinskiy Rayons. In all snow plowing has already been carried out on an area of about 300,000 hectares in the oblast. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 29 Jan 82 p 1] 11,439

REPEATED SNOW RETENTION--Kuybyshev--Tractor operators on farms in Pokhvistnevskiy Rayon have begun repeated snow retention. The plowing of new furrows across old ones will increase moisture reserves by 20 percent. This is especially important for areas sown with corn, sugar beets and other crops. Farms in Borskiy, Kinel'skiy, Volzhskiy and other rayons in the oblast are carrying out white plowing at high rates. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 20 Feb 82 p 1] 11,439

AERIAL TOPDRESSING--Elista--Pilots of Kalmykiya's agricultural aviation lifted their machines into the air from kolkhoz and sovkhoz runways. They have begun the topdressing of winter crops with mineral fertilizers. Mineral fertilizers are also highly effective on estuaries flooded in spring, tripling or quadrupling the grass yield. In the autonomous republic all meadows are topdressed from the air. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 20 Feb 82 p 1] 11,439

DELIVERY OF COMPOSTS--Volgograd--About 300 fertility detachments deliver organic fertilizers to the fields of the oblast's kolkhozes and sovkhozes. Composts are delivered primarily to irrigated land for the future sowing of vegetables, lucerne and corn and to fallow fields, where wheat and rye are placed. Since the beginning of the year about 7 million tons of organic fertilizers have been delivered--1.5 million tons more than during the entire last year. This work is organized competently on farms in Novoanninskiy, Kikvidzenskiy and Kalachevskiy Rayons. /Text/ /Moscow GUDOK in Russian 5 Dec 81 p 1/ 11,439

SUNFLOWER CULTIVATION--Krasnodar--It was decided to cultivate sunflowers according to industrial technology on Kuban' farms. More than 100,000 hectares have been assigned for such crops here--10 times as much as last year. Equipment and fertilizers have been prepared for spring sowing. /Text/ /Moscow TRUD in Russian 2 Feb 82 p 1/ 11,439

HIGH-GRADE SEEDS--Voronezh--Farmers in Kashirskiy and Pavlovskiy Rayons were the first in the oblast to prepare high-grade seeds for spring. /Text/ /Moscow TRUD in Russian 26 Jan 82 p 1/ 11,439

SNOW RETAINING UNITS--Ul'yanovsk--Farmers in the Central Volga have transported hundreds of units for snow retention to fields. /Text/ /Moscow TRUD in Russian 26 Jan 82 p 1/ 11,439

MANURE APPLICATION--Tambov, 10 Dec--A total of 10 million tons of organic fertilizers have been delivered to the oblast's fields. More than 350 mechanized detachments of the Scientific Production Association for Agrochemical Services to Agriculture, the Agricultural Equipment Association, kolkhozes and sovkhozes work with the slogan: "We will apply no less than 6 tons of organic fertilizers per hectare of arable land." Farmers in Kirsanovskiy, Rasskazovskiy, Tambovskiy, Mordovskiy and Zherdevskiy Rayons have already coped with this task. Taking advantage of the favorable conditions of winter days, farmers are increasing the rates of delivery of organic fertilizers to fields. On some days they deliver 60,000 to 70,000 tons of manure. /By A. Terekhov/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 11 Dec 81 p 1/ 11,439

MOISTURE ACCUMULATION EQUIPMENT--Kursk--The abundant snow falls have revived the fields of Kursk farms. Machine operators have begun moisture accumulation, using the most diverse devices for this: snow ridgers, metal bars and beams and smooth rollers filled with sand. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 20 Jan 82 p 1/ 11,439

PROCUREMENT OF MINERAL FERTILIZERS--Orel, 3 Feb--This year the oblast's farmers have made the commitment to gather no less than 20 quintals of grain crops per hectare and to greatly increase the output of sugar beets, potatoes and fodder and other crops. For an increase in land fertility great significance is attached to the procurement of mineral fertilizers and to the delivery of organic fertilizers to fields. A total of 6 million tons of manure are to be delivered for spring crops and to fallow fields and 140,000 hectares of acid soil are to be limed. Procurement plans, delivery routes and the methods and time of application of organic fertilizers have now been worked out on every kolkhoz and sovkhoz. Their dose has been determined for every field with due regard for the nutrient reserve. Mechanized fertility detachments and links have been established on all farms. Every day machine operators on farms in Dolzhanskiy, Livenskiy, Mtsenskiy, Khotynetskiy and Orlovskiy Rayons deliver 4,000 to 5,000 tons of local fertilizers to fields earmarked for spring crops. The skillful labor organization and measures of moral and material incentives for machine operators greatly contribute to their success. /By I. Mironov/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 4 Feb 82 p 1/ 11,439

WINTER WHEAT--Rostov-on-Don, 19 Mar--The oblast's farmers have set for themselves the goal of annually producing 8.5 to 9 million tons of grain during the current 5-year period. As before, a valuable food crop--winter wheat--will occupy a big proportion in its gross output. Work on the care of winter crops and their feeding with mineral fertilizers and protection against agricultural pests did not stop on farm fields even in winter. About 400,000 hectares of sown areas and, with due regard for last year's fall, 820,000 hectares have been fertilized on kolkhozes and sovkhozes since the beginning of the current year. With the arrival of spring the front of care of crops has expanded. Agricultural aviation has come to the aid of farmers. The biggest volume of fertilization has already been performed on farms in Sal'skiy, Azovskiy, Tselinskiy and Morozovskiy Rayons, where more than two-thirds of the areas sown with winter crops have received mineral feeding. Mineral fertilizers for root dressing of winter crops have been procured on kolkhozes and sovkhozes. The use of this valuable agricultural method enables advanced farms to obtain thousands of additional quintals of grain. Feeding units for ground application of mineral fertilizers have been prepared. /By Yu. Maksimenko/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 20 Mar 82 p 1/ 11,439

SPECIALIZED DETACHMENTS--Orel--Machine operators in Orlovskaya Oblast delivered 1 million tons of organic fertilizers to fields. This is much more than last year. The high rates of work are the results of the general use of large specialized detachments. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 17 Feb 82 p 1/ 11,439

FIELD FERTILITY--Bryansk, 1 Dec--"High fertility for every field"--this is the slogan with which the oblast's farmers are preparing themselves for spring. The specialized detachments and links of kolkhozes and sovkhozes--more than 500 such detachments and links operate--have already delivered 1 million tons of organic fertilizers to fields. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 2 Dec 82 p 1/ 11,439

SOIL PREPARATION--Astrakhan', 19 Mar--Farms in the oblast's southern rayons have begun the preparation of soil for spring crops. At the same time, machine operators on kolkhozes in Limanskiy Rayon are applying fertilizers. Dozens of units have gone out to fields in Narimanovskiy, Ikryaninskiy and Yenotayevskiy Rayons. The topdressing of winter crops and lucerne is being continued. /By A. Golovko/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 20 Mar 82 p 1/ 11,439

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INTENSIFYING LIVESTOCK FEED PRODUCTION TASK OF NONCHERNOZEM ZONE

Moscow VESTNIK SEL'SKOKHOZYAYSTVENNOY NAUKI in Russian No 3, Mar 1982, pp 45-51

/Article by M.A. Smurygin, Candidate of Agricultural Sciences and director of the All-Union Order of Red Banner of Labor Scientific Research Institute imeni V.R. Vil'yams: "Intensification of Feed Production -- the Principal Task of the Nonchernozem Zone"/

/Text/ In conformity with the decisions handed down during the July (1978) Plenum of the CC CPSU and the 26th congress of our party, the development of feed production in recent years has been converted over to an industrial basis in a more confident manner and thus it is becoming a highly efficient branch of agriculture, a branch which serves as the foundation for achieving improvements in animal husbandry. Rapid growth in the productivity of the livestock and poultry and increases in the production of milk, meat and other animal husbandry products can be achieved only if the farms are provided with a guaranteed supply of rich and cheap feeds in the required quantity and assortment. At the present time, the feed production volumes at kolkhozes and sovkhozes in the Nonchernozem Zone of the RSFSR are increasing and the quality of the feed is being improved. During the years of the Tenth Five-Year Plan, the production of coarse and succulent feeds surpassed the level for the Ninth Five-Year Plan by 20 percent. However, success was still not achieved with regard to satisfying fully the feed requirements of animal husbandry. When one considers that the plans for the Eleventh Five-Year Plan call for feed production to be increased by 22 million tons, or by 37 percent, above the level for the Tenth Five-Year Plan, then the difficult tasks confronting the agricultural workers become quite obvious.

The successful carrying out of these complicated tasks, bearing in mind the zone's poor soils and the fact that its animal husbandry operations are developing at an intensive rate, is greatly dependent upon improvements being realized in the use of the land and raising its fertility -- the very foundation for achieving growth in the cropping power and gross yields for the forage and other agricultural crops. On the average, there are only 27.2 quintals of feed units per standard head of livestock here, less than 80 percent of the scientifically sound norm. During the years of the Tenth Five-Year Plan, the proportion of concentrates in the feed structure increased from 36.6 to 41.9 percent, while at the same time the proportion of coarse feed fell from 23 to 17 percent and that for pasture feed -- from 17 to 15 percent. Owing to a lack of balance in the rations in terms of protein, considerable overconsumption of feed per unit of animal husbandry output has taken place in many rayons throughout the zone and the percentage of substandard feed has been very great.

Despite the fact that the cropping power for forage crops in the Nonchernozem Zone of the RSFSR increased roughly by 20-25 percent during the years of the Tenth Five-Year Plan, it continues to remain low and in fact is considerably lower than the all-union level. Whereas throughout the country as a whole 21.1 quintals of feed units are being obtained per hectare of forage crop sowing, on farms in the Nonchernozem Zone -- only 16.7 quintals of feed units per hectare.

During the Spring of 1981, the party and government adopted the new decree entitled "The Further Development and Improved Efficiency of Agriculture in the Nonchernozem Zone of the RSFSR During the 1981-1985 Period." In this decree the task was set forth of achieving a considerable increase in the production of animal husbandry products, which necessarily requires that we procure 1.5-1.7 times more feed annually than has been the case up until now.

How is this increase in feed to be obtained? It is known that the low natural fertility of soils in the Nonchernozem Zone is the chief limiting factor with regard to raising the productivity of all agricultural crops, including forage crops. In Tsentral'nyy Rayon in the RSFSR, for example, the level of natural soil fertility makes it possible to obtain perennial and annual grass yields on the order of only 10-15 quintals of dry substance per hectare, corn -- 10 and grain -- 6-8 quintals per hectare. At the same time, the heat and water resources found in this are make it possible to obtain rather high yields: for example, perennial grasses -- on the order of 70-80 quintals of dry substance per hectare, annual grasses -- 50-60, root crops (together with leaves) -- 100-130 and grain forage crops -- 35-40 quintals per hectare. This is why the principal direction to be followed for the intensification of feed production and farming in the zone must be that of raising the fertility of the soil to the maximum possible degree and, on this basis, achieving improvements in the technologies for cultivating the crops and also in the overall system of farming.

The results of studies have shown that in order to retain soil fertility an average of no less than 12-15 tons of farmyard manure must be applied per hectare here each year. In addition, perennial grasses must be grown, since in addition to possessing great feed qualities they also serve to raise the fertility of the soil considerably, by increasing the humus content of the soil.

It has been established that following a high yield of perennial grass, more than 100 quintals of organic bulk per hectare remain in the soil together with the root and crop residues. Even in the case of the present low level of productivity for these grasses in the Nonchernozem Zone of the RSFSR, more than 11 million tons of organic bulk enter the soil annually together with the root and crop residues. This amount of bulk contains 166,000 tons of nitrogen, 44,500 tons of phosphorus and 70,600 tons of potassium. Such a quantity of nutrients is equivalent to 33 million tons of high quality farmyard manure.

Unfortunately, the sowing areas for leguminous grasses have decreased in size in recent years and this has led to a deterioration in the quality of the feed and to a reduction in the agrotechnical role played by a perennial stand of grass. The mowing area for clover, for example, decreased from 4.6 to 3.6 million hectares in the Nonchernozem Zone of the RSFSR. Moreover, many farms are using their sowings of clover and clover mixtures not for just 1-2 years, but rather for 3-4 years or more. For this and other reasons, the cropping power of clover in a pure sowing and in mixtures with cereal grasses remains low throughout the zone. At the same time, the clover hay harvests being obtained at strain testing stations and some leading farms amount to 78.1 quintals per hectare in the Belorussian SSR and 60 quintals per hectare in Tsentral'nyy and Severo-Zapadnyy Rayons in the RSFSR.

Studies have established the fact that the agrotechnical role played by clover increases when fertilizers are applied.

During a long-term fixed experiment conducted by our institute, a positive nitrogen balance was obtained when an average of 300-350 kilograms of mineral fertilizer active agent were applied per hectare of ground. At the present time, an average of only 98 kilograms of fertilizer active agent is being applied to a hectare of forage crops in the Nonchernozem Zone of the RSFSR. This is very little. During the Tenth Five-Year Plan, a positive nutrient balance in the soil was achieved only in Belorussia and Estonia. Thus, during the Eleventh Five-Year Plan, in Lithuania, Latvia and the Nonchernozem Zone of the RSFSR, the fertilizer application norms must be increased by at least 20-22 percent in order to prevent a decrease in soil fertility and a reduction in the productivity of forage crops.

Analysis reveals that with regard to the present planting structure for forage crops, the overall deficit in nitrogen for example, in field feed production in the Nonchernozem Zone of the RSFSR amounts to approximately 40,000 tons.

A high saturation of arable land by grass crops leads to adverse phenomena in the microbiological activity of the soil. In the feed and crop residues of grasses, the ratio between nitrogen and carbon is very great, equal to 1:30 and more. This leads to slow mineralization of the organic bulk and immobilization of the nitrogen in fertilizers and the soil and hence to slow accumulation of those forms of nitrogen which are readily accessible for the plants.

In view of the fact that there is a shortage of nitrogen, improvements must be achieved in the structure of the area under crops, directed towards expanding the sowings of clover, alfalfa and pulse crops, with all sowings of oats and barley for green feed in pure form being replaced by leguminous grass mixtures. This will make it possible, as a result of air nitrogen fixation by the pulse plants, to reduce considerably the nitrogen deficit in farming.

It must not be forgotten that the raised acidity of soils in our zone is seriously lowering the use of nutrients by the plants and the effectiveness of fertilizers, it is suppressing the microbiological processes and it is lowering the agrotechnical role being played by the pulse crops. This serves to explain why the fertilizers applied do not always produce an adequate return. For example, during the Tenth Five-Year Plan the use of fertilizers in the Belorussian SSR increased by 81 percent above the figure for the Ninth Five-Year Plan and the productivity of the forage crops increased by only 37 percent. Meanwhile, in Lithuania and Estonia, where fertilizers are employed mainly on limed soils, increases in the fertilizer dosages of 28 and 21 percent produced increases in the productivity of the forage crops of 35 and 33 percent respectively.

Against a lime background and compared to non-limed soils, the effectiveness realized from applying the same dosages of fertilizer increases at times by 1.5-2 times. However, up until recently more than one half of the forage crop plantings in the Nonchernozem Zone of the RSFSR were sown on acid soils, including in the northwestern region -- 80 percent and in Volgo-Vyatski region -- 90 percent.

Even in this region, the effectiveness of fertilizers is increasing considerably in combination with irrigation, with forage crops being most responsive to the combined effect of these two factors: they provide a high return in the form of an increase in yield for each kilogram of mineral fertilizer and cubic meter of irrigation water. During a long-term experiment conducted at our institute in a seven-field feed crop rotation plan, with complete mineral fertilizer being applied in dosages of 2.5-4 quintals of active agent per hectare and the soil moisture content being maintained at the 70-80 percent PPV /maximum field moisture capacity of soil/ level, 100 quintals of feed units were obtained annually from each hectare.

The Nonchernozem Zone is distinguished by developed animal husbandry operations. Large-scale measures have been carried out in recent years directed towards achieving concentration of animal husbandry operations based upon both inter-farm cooperation and intra-farm specialization. Under these conditions, special urgency is attached to introducing and mastering feed crop rotation plans in which it will be possible to create optimum conditions for obtaining cropping powers close to the potential of the crops under cultivation and for producing more feed from a smaller area.

Our computations reveal that in order to carry out the feed procurement plans for the Eleventh Five-Year Plan, we must convert at least one half of the forage crop areas in the Nonchernozem Zone of the RSFSR over to cultivation within the system of specialized fodder crop rotation plans.

Within the zone there are many drained and developed peat bogs. Fodder crop rotation plans involving the use of perennial grasses play a very great agrotechnical role on these peat bogs. Studies carried out at the Kirov Meadow and Swamp Experimental Station of the All-Union Scientific Research Institute of Fodder have shown that a sharp reduction takes place in the mineralization of organic bulk and soil wind erosion is eliminated in such crop rotation plans. According to our data, in the case of row crops (corn, forage root crops) the "degree of wear" of peat soils annually reaches 1 centimeter, the result mainly of wind erosion. In order to protect the fertility of these soils, use should be made of crop rotation plans having a great saturation of perennial grasses. The mechanical tilling of soil should be reduced to a minimum when growing row crops on these soils and the campaign against weeds should be carried out using mainly chemical means.

In the Nonchernozem Zone of the RSFSR, approximately 30 percent of the arable land is located on soil of a light mechanical structure, a large portion of which is acid in nature with especially low fertility. These lands can be tamed through applications of organic fertilizer, by liming and by cultivating perennial grasses and lupine. Thus, on sod-podzolic sandy soils, an application of 4-5 tons of dolomitic meal per hectare and 20 tons of farmyard manure per hectare ensures 120 additional quintals of feed units per hectare during three rotations, that is, the productivity of each hectare of crop rotation plan area increases by 570 feed units. Studies carried out over a period of 20 years have shown that an increase in the cropping power of perennial grasses serves to improve considerably the agrochemical properties of the soil: hydrolytic acidity dropped from 2.4 to 1.6 milligram-equivalents, pH increased from 4.5 to 5.2-5.4 and the humus content increased by 0.12 percent.

In improving the structure of the areas under crops in the Nonchernozem Zone, considerable importance is attached to expanding the sowings of early ripening hybrids and varieties of corn in order to obtain ears of milky-waxy and waxy ripeness; increasing the growing areas for intermediate crops and the sowings of pulse crops as the principal source for plant protein. Unfortunately, the opposite trend has been observed taking place in the Nonchernozem Zone of the RSFSR during the Tenth Five-Year Plan -- compared to the Ninth Five-Year Plan, the sowings of pulse crops decreased by 36 percent and in 1980 the plan for the production of these crops was fulfilled by only 25 percent. This explains why the shortage in feed protein in the zone remained at the 0.5 million ton level throughout the five-year plan. In order to meet the minimal protein requirements of animal husbandry in the zone, the pulse crop harvests must be increased by at least a factor of five during the next few years, a considerable expansion must take place in the areas to be used for peas, lupine and rape and the sowings of alfalfa and clover must be increased so as to constitute 60-70 percent of the perennial grass structure.

Natural haying and pasture land constitutes a strong reserve for strengthening the feed base in the Nonchernozem Zone of the RSFSR. They occupy 15.8 million hectares or 37.6 percent of all agricultural land. However, vast areas of this land are in a neglected state. Thus the productivity of this land remains low with the haying lands producing an average of less than 8 quintals of hay per hectare and the pastures -- approximately 13 quintals of fodder per hectare. The proportion of natural meadows in the zone's feed balance remains low; it produces no more than 30 percent of the feed.

The feed yields from meadow lands can be increased only by means of land reclamation. In recent years, extensive work has been carried out in this regard. However, as yet the proportion of meadows which have undergone such improvement remains low -- only 13 percent; unfortunately, their cropping power also remains low -- an average of 16.6 quintals of hay per hectare for the Nonchernozem Zone of the RSFSR and in a number of oblasts -- 11-12 quintals per hectare. This is explained for the most part by the fact that fertilizers are as a rule applied to improved meadows only during the year in which they are developed, with generally no fertilizer being applied to more than two thirds of this land during subsequent years. This leads to a rapid degeneration of the grass stands and to a reduction in their cropping power. The fertility of such feed lands does not increase and thus year after year it remains at a low level.

One of the principal laws of farming is violated -- the law of return. In 1979, for example, the amounts of nitrogen, phosphorus and potassium withdrawn from the soil in the form of hay and pasture feed harvests in the Russian Federation were greater by 5, 6.5 and 7.3 times respectively than the amounts applied in the form of fertilizer and it has continued this way for many years. Thus the cropping power of natural meadows, including improved ones, is not only not increasing but in fact it is constantly decreasing.

During a long-term experiment carried out in 1947 at the All-Union Scientific Research Institute of Fodder, it was established that the systematic use of fertilizers (20 tons of farmyard manure per hectare and $N_{120}P_{45}K_{90}$) promotes not only a constant increase in the productivity of haying land but also a noticeable increase in the soil fertility. During this experiment, an annual average of 64 quintals of hay per hectare was obtained over a period of 33 years and in recent years the cropping power has held firmly at the level of 100 quintals of hay per hectare. As a result of the intensive accumulation of root bulk, humus formation was noted actively taking place in the soil and the return realized from the systematic application of the mineral fertilizer norm constantly increased. In addition, intensive fertilization of a sown haying land made it possible to convert over to employing it on a multi-cutting basis (3-4 cuttings) and thus not only raise by twofold the productivity (to 11,000 feed units) but also to obtain feed having a food value at the concentrate level of up to 1 feed unit per kilogram of dry substance.

It is impossible not to take note of the inadequacy of such a situation, with the reclamation of some lands not producing the desired effect and with an obsolete technology being employed for the stubbing and burning of woody vegetation. In the process, up to 200-300 tons of organic substance are removed from each hectare of a developed area, thus lowering still further the already low natural fertility of the soil. As is known, wood is not rich in nutrients and yet when it is burned the losses to the soil per hectare include 240-360 kilograms of nitrogen, 50-70 kilograms of phosphorus, 390-600 kilograms of potassium and a large quantity of humus and the soil structure is disrupted.

A technology has been developed at our institute for developing shrubbed lands, with the woody vegetation being minced by means of an MTP-42A machine. Thereafter it is plowed under and the soil disked thoroughly. When the soil is processed in this manner and $N_{240}P_{90}K_{180}$ applied, perennial grasses produce an average of 100 quintals of dry bulk per hectare, or more than 8,000 feed units at a production cost of 3.1 kopecks per feed unit, during the first 3 years of development of the land. This technology also ensures an increase in soil fertility and thus it must be employed on an extensive scale.

Studies carried out in recent years have established the many-sided effect generated by irrigation on soil fertility, with the various irrigation methods exerting different effects. Irrigation carried out on the basis of scientifically sound norms, as revealed by our studies, raises considerably the effectiveness of fertilizers. Compared to a non-irrigated grass pasture where the coefficient of use of phosphorus does not exceed 12 percent, under irrigation conditions this coefficient reached 32.5 percent. In the absence of irrigation, nitrogen use by plants amounted to 30-45 percent and with irrigation -- up to 55 percent. Under irrigation conditions, from 11 to 105 additional kilograms of soil nitrogen were mobilized and in the process there was practically no leaching away of the nitrogen. During these experiments, irrigation made it possible to increase the dry bulk yield obtained from the same dosage of nitrogen -- 240 kilograms per hectare -- with sprinkling by 36 percent and with subirrigation -- by 49 percent. It was established that the irrigation of haying and pasture land in the zone is economically justified only when this same nitrogen fertilizer norm is applied, not a lesser one. The capital expenditures will then be reimbursed within 3-5 years.

A large reserve for increasing output production and raising soil fertility is that of utilizing the runoff from animal husbandry operations, since this runoff makes it possible to increase the content in the soil of organic substance, hydrolyzed nitrogen, phosphorus and potassium. The use of liquid ammonia as a fertilizer is also extremely effective. The experience accumulated in the use of liquid ammonia in the USSR and in other countries reveals that 20-25 percent less funds are required for applying it to the soil than that required for ammonium nitrate and compared to solid mineral fertilizers the labor expenditures are reduced by a factor of 2.5-2. In accordance with the prices established for agriculture, the cost of nitrogen in ammonia is considerably lower than that in other forms of nitrogen fertilizers.

Studies conducted at our institute have shown that, on the average for a period of 3 years, an application of 80 kilograms of nitrogen per hectare in the form of liquid ammonia, to a sown haying land of extended use, served to increase the hay yield from 27 to 57 quintals, with 37.5 kilograms of hay being obtained for each kilogram of active fertilizer agent. The crude protein content in the hay was raised from 8.1 to 12.4 percent. The productivity of an irrigated pasture, when 240 kilograms of active nitrogen agent were applied per hectare in the form of liquid ammonia, was raised by a factor of 2.4. With regard to its effect on a grass harvest or on the quality of hay and pasture feed, ammonia is practically equivalent to the traditional nitrogen fertilizers -- ammonium nitrate and urea.

At the present time, work concerned with the rebuilding of natural feed lands is being delayed to a considerable degree owing to the fact that these lands have not been adequately inspected. On the whole, they constitute only 34 percent of the Nonchernozem Zone of the RSFSR. This percentage is even lower in the central region -- 28 percent and in the northwestern region -- 18. In such oblasts as Moscow, Bryanskaya, Yaroslavskaya and others, where natural meadows occupy large areas and must furnish a considerable portion of the feed, inspections of these meadows have not as yet even commenced. Under such conditions, land reclamation is often carried out in a blind manner and is thus incapable of producing great results. During the current five-year plan, a requirement will exist for raising sharply the tempo of the work associated with the complete geobotanical, soil and ameliorative inspection of the natural feed lands in the Nonchernozem Zone.

The effectiveness of field and meadow feed production is greatly dependent upon the degree to which the kolkhozes and sovkhozes are supplied with high quality seed for regionalized varieties of forage crops and particularly perennial grasses. Unfortunately, during the Tenth Five-Year Plan the situation with regard to grass seed production deteriorated and, in particular, clover seed production fell sharply.

True, 633 specialized grass seed farms were created during the Tenth Five-Year Plan in the Nonchernozem Zone of the RSFSR, but unfortunately they have still not become the principal producers of grass seed and are furnishing only 12 percent of the gross yield. Many of them are even unable to satisfy their own requirements. Finally, more effective measures must be undertaken aimed at converting seed production over to an industrial basis.

One of the most vital problems in the Nonchernozem Zone is that of feed preservation. Approximately 30 percent of the crop grown is being lost for various reasons. This means that approximately 3 million hectares of arable land are worked annually just for the purpose of covering these losses. Up to 45 percent of the overall feed losses occur as a result of the untimely harvesting of forage crops, approximately 22 percent -- owing to disruptions in the technologies recommended by science for procuring the crops and especially great losses -- owing to improper storage. Approximately 40 percent of the silage and haylage is still being stored in earth trenches, ground clamps and piles, in which up to 50-60 percent of the feed is being lost or it spoils completely. For all practical purposes, no storehouses are available for hay, granules or briquettes.

During the Eleventh Five-Year Plan, the quality of the haylage, silage and other types of feed must be raised sharply on all farms in the Nonchernozem Zone. At the present time, late ripening varieties of corn having a high (in excess of 80 percent) moisture content in the ensiled bulk are mainly being cultivated throughout the zone. Thus the silage being obtained from it is poor and acid in nature. Studies have shown that chemical preservatives produce great results in the ensiling of such bulk -- they reduce nutrient losses by a factor of 2-3. The VIK-1 and VIK-2 preparations, developed at our institute, guarantee practically complete -- 97-98 percent -- preservation of the crop grown, including 95 percent of the sugar. Many oblasts throughout the zone are presently willingly introducing these preparations into operations.

The scientific institutes are carrying out a great amount of work aimed at further developing the feed production branch and raising its economic effectiveness. Methods have been recommended for use by kolkhozes and sovkhozes which are making it possible to increase feed production considerably on arable lands and on haying and pasture land. Technologies have been developed for procuring haylage, silage and other feed which ensure almost complete retention of their nutrients. Methodological instructions have been developed for preparing all-round programs for developing feed production operations in an oblast, kray or republic. "Proposals for developing the feed base for animal husbandry in the Nonchernozem Zone of the RSFSR, in keeping with scientific-technical progress up to the year 1990" have been submitted.

Despite the large number of unsolved problems, there is nevertheless every reason for stating that a great amount of scientific potential has already been accumulated at the present time for creating a strong feed base. Moreover, there are many scientific developments, the introduction of which into agricultural production will make it possible to strengthen considerably the feed base of the Nonchernozem Zone and make it more stable.

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LIVESTOCK FEED PROCUREMENT

METHODS OF INCREASING GREEN FEED PRODUCTION

Moscow SEL'SKAYA ZHIZN' in Russian 1 Apr 82 p 2

/Article by D. Altunin, doctor of agricultural sciences, All-Union Scientific Research Institute of Fodder: "For the Green Conveyer"/

> /Text/ The experience of advanced workers and the calculations of scientists confirm: It is possible to sharply increase the production of milk and meat during the current year if green feed is utilized widely and skillfully. During summer months advanced farms in localities near Moscow produce 45 to 50 percent of the annual gross milk yield, at the same time, saving up to one-half of the concentrated feed. To obtain as much green feed from arable land and meadows as possible is an important task of farmers.

Green feed is high-grade feed and should become not only the basic feed for ruminants, but also be included in the rations of hogs and poultry. This feed contains almost all the nutrients necessary for animals: protein, carbohydrates, vitamins and mineral elements. Suffice it to say that one feed unit of pasture feed accounts for 110 to 120 grams of digestible protein and more, 120 to 130 milligrams of carotene, 10 to 12 grams of calcium and 4 to 5 grams of phosphorus. For comparison we will mention that a feed unit of oats grain contains about 85 grams of protein, 1.4 grams of calcium and 3.3 grams of phosphorus and does not have carotene at all. Therefore, green feed must not be replaced with concentrates. It should be taken into consideration that a feed unit in pasture feed costs no more than 2.5 to 3 kopecks and in mowed greens, 4 to 6 kopecks. However, the production cost of a feed unit in grain is 8 to 13 kopecks.

That is why in summer green feed should become the basic feed for most types of farm animals kept both on pastures and in stables. In order to obtain this feed in a sufficient quantity, farms organize a green conveyer, which makes it possible to fully and regularly meet the needs of the entire stock for it from spring to fall.

Depending on local conditions the green conveyer is created both through field feed production and natural fodder land. It includes various perennial and annual grasses, corn, winter rye, rape and wild cabbage, fodder root and melon crops, fodder cabbage and sweet lupin. Among annual grasses sizable areas are assigned to pulse and grass-legume mixtures.

It is important to obtain green feed as early in spring as possible. For this purpose plots with a good grass stand located on elevated places and southern slopes are selected and are first fed with mineral nitrogen or organic fertilizers. Reed grass, cock's foot and foxtail produce the earliest green feed. In many of the country's regions in early spring green feed can be obtained from areas sown with winter crops--rape, wild cabbage and rye sown for feed purposes. For this they are also fed with mineral fertilizers at the rate of 45 to 60 kg of nitrogen per hectare and, when they are not available, with organic fertilizers (animal discharge, poultry manure and so forth).

Even before winter fodder crops and perennial grass begin to sprout, an inventory of these sown areas, as well as of hayfields and pastures, is taken. Thinned out sown areas are mandatorily overseeded with annual fodder crops (rye grass and vetch-oats mixtures) and, when necessary, are resown. The main thing is not to lose time. Weak areas sown with winter fodder crops and perennial grass must be fed with higher doses of fertilizers--60 to 80 kg of nitrogen per hectare.

Reclaimed land should become a guaranteed source of green and succulent feed. On irrigated plots it will be necessary to sow the most highly productive fodder crops--lucerne, corn, Sudan grass, sorghum-Sudan grass hybrids, soybeans and fodder root crops.

Alternate crops can produce much green feed in the country's souther regions. After their harvesting it is possible to additionally obtain a harvest of corn or Sudan grass cultivated for green feed. However, alternate crops are introduced slowly. They have not found the necessary acceptance in Rostovskaya Oblast and on farms in central chernozem oblasts. In Stavropol'skiy Kray and South Ukraine it is useful to accompany corn with soybeans. Mixed crops will increase the content of protein in feed by no less than 25 to 30 percent.

The sowing of corn and annual grass (fodder millet and peas with oats), as well as perennial grass, produces good green feed in West Siberia. The summer sowing of cruciferous crops--rape and oil-bearing radish--has proved its value in the Transbaykal region. They produce up to 400 quintals of green feed per hectare. Good harvests of these crops are also obtained in Krasnoyarskiy Kray and Central Asia.

In the nonchernozem zone during the current year it is useful to expand the areas under early and medium ripening corn hybrids and varieties. In this zone corn for green feed and silage are successfully cultivated on permanent farm plots. A double benefit is derived. The expenditures on the transportation of organic fertilizers and the delivery of green feed are reduced and high stable harvests are guaranteed. An annual application of higher doses of organic fertilizers (40 to 60 tons per hectare) sharply increases soil fertility. At our institute corn has been cultivated on a permanent plot for 23 years. Whereas during the first years the productivity of 1 hectare of area sown with it was 352 quintals of green feed, or 56 quintals of feed units, now it has increased to 510 or 581 quintals of green feed (87 to 88 quintals of feed units). High harvests were obtained both during cold and wet (1980) and dry (1981) years.

The utilization of grass stands with many hay cuttings makes it possible to greatly increase the production of green feed in the sufficient moisture zone and on irrigated land. This new technology with an application of higher doses of fertilizers (180 to 240 kg of nitrogen per hectare) increases the production of green feed no less than 1.5- to 2-fold. Whereas on most kolkhozes and sovkhozes natural hayfields have been mowed once year after year, the task of attaining no less than two hay cuttings everywhere should be set during the current year.

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LIVESTOCK

LIVESTOCK OVERVIEW, URGENT PROBLEMS NOTED

Moscow SEL'SKAYA ZHIZN' in Russian 24 Mar 82 p 1

/Article: "Crucial Time on Farms"/

/Text/ On the Kolkhoz imeni 16-y Godovshchiny Oktyabrya in Gus-Khrustal'nyy Rayon, Vladimirskaya Oblast, managed by S. P. Ginin there is constant concern for the working conditions of livestock breeders, moral and material incentives and improvement in their skills and competence. Farm workers--mainly young people work in the sector--are not behindhand. No matter how complex the year is, wintering proceeds calmly here. Milk yields, weight gains and the production and sale of milk and meat to the state continue to grow.

The example of this and many other farms once again convinces us how much depends on farm personnel--their knowledge, diligence, discipline, creative resourcefulness and initiative. These qualities are especially needed now, when a crucial time has arrived on farms, which determines to a significant extent not only the results of wintering, but of the entire year. Everyone understands how important it is to attain a fundamental change in animal husbandry and to unfailingly ensure an increase in livestock and poultry productivity. All rural party, trade-union and Komsomol organizations must be directed toward this and managers and specialists should subordinate their work to this.

Spring gladdens livestock breeders with its warmth, but, at the same time, it makes them anxious. The reserves of feed decrease every day and, moreover, its quality is lowered in the process of storage. People have been unable to set organization, collectedness and competence against these difficulties everywhere. In the last 2 months of wintering, as compared with the same period last year, gross weight gains in large-horned cattle were lowered in the Tuvinskaya Autonomous Republic and in Tambovskaya and Chitinskaya Oblasts and in hogs, in Krasnodarskiy and Primorskiy Krays. Milk production was reduced markedly in the Mariyskaya ASSR, the Komi ASSR and Kirovskaya Oblast.

Serious organizational work is required to eliminate these phenomena. There is a need for specific direct help in the localities and clear assignments to executors--how much and what type of feed should be processed, how to improve animal keeping conditions and how to facilitate people's labor and to increase their interest in final results--not general directions about the necessity "to increase attention" to animal husbandry. "Both in agriculture and in the industrial sectors connected with it," L. I. Brezhnev stressed in his speechat the 17th Congress of USSR Trade Unions, "there are many urgent matters, which cannot wait and can and should be handled immediately in order to improve the supply of food products."

There are also many such matters on farms. For example, let us take the marketability of milk. There are oblasts where one-fourth of the output is used for intrafarm needs. More than 20 percent of the milk is consumed on farms in the Buryatskaya, Dagestanskaya and Udmurtskaya Autonomous Republics, Altayskiy Kray and Kalininskaya, Saratovskaya and Rostovskaya Oblasts. Of course, we must not fail to take into account that much milk is now used to feed calves and this quantity cannot be reduced below a certain limit without damage to the development of young stock, that is, the future herd. Often, however, milk is used without control, specialists do not organize milk substitute production and there are also cases of misappropriation of output. A decisive and constant fight against these losses must be waged. People's controllers are to play an important role here.

Kolkhoz and sovkhoz livestock breeders now face three interconnected tasks, that is, to increase the productivity of livestock, to obtain a healthy young stock and to preserve it fully. To attain an increase in milk yields and weight gains is one of the most important matters. The lag in milk and meat production is not always due to the shortage of feed. For example, on Bashkiriya's farms the feed per standard head of livestock has increased by 14 percent and more, as compared with last year, and, moreover, the reserves themselves are no longer so small. But in January-February less milk was obtained than last year. In the Karel'skaya ASSR, while specific feed reserves increased by 9 percent, 74 kg of milk per cow were lost. In Tomskaya Oblast there are 7 quintals of feed units per standard head of livestock, which is also higher than last year's level. However, the average daily weight gains in livestock are only 482 grams here, which is almost 9 percent lower than a year ago. Apparently, the entire matter lies in the low level of work organization on farms and, primarily, the organization of feed preparation, routine preparation of rations without regard for the characteristics of the period and blunders in zootechnical work.

The beginning of the year is the time of a mass arrival of young stock. For example, on farms in the Russian Federation in 2 months the number of calves increased by 3 million, of hoglings, by almost 5 million and of lambs, by more than 6 million. Their number is increasing every day. Now it is important to preserve this young stock and to ensure its good development. Meanwhile, in a number of places the raising of animals is organized poorly, better feed is not allocated to them, as prescribed, and they are not cheated out of their share of concern and attention. This undermines the basis for an increase in herd productivity in the future and the plans for the sector's further development are jeopardized. To introduce proper order in this matter is the most important task, first of all, of veterinary specialists and zootechnicians.

Directing all their efforts toward the solution of current urgent problems, livestock breeders do not lose sight of the prospects for the sector's development and its immediate and distant future. To organize the summer keeping of livestock so as to obtain as much output with green fodder as possible, to make up for the winter shortage of output in this way and, at the same time, to save concentrated feed are some of the main tasks. For this it is necessary, in particular, to obtain as many hoglings as possible at the beginning of summer. This was taken into account on farms in Bryanskaya, Sverdlovskaya, Murmanskaya and Omskaya Oblasts, which expanded the reproduction of the hog herd considerably. But in Orlovskaya Oblast, if immediate measures are not taken, fewer hoglings will be obtained during summer months than last year.

Having entered the competition for an appropriate welcome for the 60th anniversary of the Land of the Soviets, kolkhoz and sovkhoz livestock breeders undertook high socialist obligations. During this crucial period in animal husbandry they strive to organize and perform all work so as to exemplarily complete the wintering of livestock and to create a reliable basis for a rise in the sector's productivity.

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ROLE OF PRIVATE PLOTS IN ESTONIAN AGRICULTURE

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/Article by I. Rayg, Candidate of Economic Sciences and senior scientific worker at the Institute of Economics of the Academy of Sciences for the Estonian SSR: "The Private Economy"/

/Text/ In the Summary Report delivered before the 26th CPSU Congress, Comrade L.I. Brezhnev stated: "The kolkhozes and sovkhozes have been and continue to be the foundation for Soviet agriculture. But by no means is this meant to imply that we can neglect the potential offered by private plots. Experience testifies to the fact that such farms can be substantial assistance in the production of meat, milk and certain other products. The orchards, gardens, poultry and cattle which belong to workers constitute a part of our overall wealth." Even earlier the CC CSPU and the Soviet Government focused attention on those problems concerned with strengthening the private plots of citizens. In 1977 a decree was adopted calling for assistance to be furnished to the private sector of agriculture and in early 1981 -- additional measures were enacted aimed at increasing the production of agricultural products on the private plots of citizens.

In this article we will examine the relationship between the public and private sectors in agriculture in the Estonian SSR and also those problems concerned with strengthening the relationships between large and small agricultural production operations and the improved utilization of the potential of the private plots of citizens, in the interests of both production operations and the consumers.

The Role of the Private Economy in Agricultural Production in the Estonian SSR

In our republic the proportion of private plots of citizens, in the production of gross agricultural output, is decreasing rather rapidly (from 42.5 percent in 1960 to 18.8 percent in 1980). During the past decade, the reduction which took place in the production of vegetables, potatoes and milk (see Table 1) was especially noticeable. Nevertheless, relatively stable ratios existed between the public and private production sectors for certain types of products. Thus, just as in the past, the private plots of citizens are producing the principal bulk of the wool, fruit and berries, that is, products which the public sector is still not capable of supplying in the required quantities, or which require a large amount of manual labor, thus raising the production costs.

The proportion contributed by the private sector to the gross production of eggs and fodder root crops (and vegetables in 1980) even increased somewhat. It also

TABLE 1

Proportion Contributed by Private Plots of Citizens To Gross Production of Certain Types of Agricultural Products in the Estonian SSR (in percentages)*

	1951-1955	1966-1970	1971-1975	1976-1980	1979	1980
Grain and pulse crops	3.3	4.7	3.6	2.9	3.1	3.0
Potatoes	53.2	41.0	36.5	30.3	29.6	29.2
Vegetables	60.1	60.1	57.8	32.2	28.0	42.8
Total amount of hay	...	36.9	35.4	36.7	40.0	31.5
including sown and natural grasses	51.1	59.5	63.9	66.0	69.3	62.7
Fodder root crops	20.4	3.4	9.7	12.6	11.1	14.1
Fruit and berries	95.1**	84.9†	83.7	85.5	84.1	88.2
Meat (in dressed weight)	58.7	31.1	23.3	17.7	17.8	14.3
Milk	53.6	32.9	27.1	21.3	19.9	19.3
Wool	60.0	95.4	95.2	94.0	93.7	93.9
Eggs	79.2	43.9	32.3	26.2	26.9	27.5

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* Computation carried out using data from statistical annuals of Estonian SSR.

** Data for 1955 and 1970.

bears mentioning that hay procurements in the public sector declined more rapidly than in the private economy. This derives from the fact that the attention of the kolkhozes and sovkhozes was directed mainly towards expanding the grain fields and thus increasing the production of grain.

Notwithstanding definite efforts undertaken during the past few years, success has still not been achieved in halting the reduction in gross agricultural production, and particularly animal husbandry output, on the private plots of citizens. Whereas during the 1960-1980 period the volume of gross agricultural output in our republic increased by a factor of 1.53, including in public production by a factor of 2.16, in the private sector it declined by 30.5 percent (including a drop of 35.6 percent in the volume of animal husbandry output).

If we examine the improvements in gross output produced on the private plots of citizens, in terms of its individual types, then we can detect some extremely substantial differences (see Table 2). In the private sector, the production of vegetables, potatoes and milk is declining most rapidly. No success has been achieved in recent years in halting the decline in the production of the two latter crops. In 1980, 61,400 tons of milk, or 21.3 percent less than the figure for 1975, were obtained. During this same period, the number of cows decreased by 17,000, or by 24.5 percent. Structural changes took place in the production of meat: the proportion of beef decreased and on the other hand pork production increased somewhat. During the next few years, the number of sheep in the republic must increase considerably and particularly in the private sector. However, positive improvements in this regard are still not being observed. Prior to the beginning of last year, the number of sheep had still not reached the level for 1975. The gross production of eggs increased slightly: in 1980, 147.9 million eggs were obtained in the private sector; this figure exceeded the indicator for 1975 and even 1965.

TABLE 2

Gross Production of the Principal Types of Agricultural Products in the Private Sector (thousands of tons)*

	1960	1971-1975	1976-1980	1979	1980	1980 compared to 1960 (in %)
Grain crops	21.5	32.2	33.0	32.2	35.6	165
Potatoes	577.1	451.9	340.3	367.9	335.1	58
Vegetables grown outdoors	93.5	61.5	32.1	30.5	53.4	57
Fruit and berries	29.0	33.1	48.1	35.3	26.1	90
Meat (in dressed weight)	43.6	34.7	32.8	30.3	28.2	65
Milk	381.0	295.1	249.5	233.1	227.3	60
Eggs (in millions of units)	165.2	139.5	127.7	135.6	147.9	90

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* Computation carried out using data from statistical annuals of Estonian SSR.

Moreover, it is noted that public production was unable to compensate for the decline in the production of potatoes and vegetables in the private sector. During the past few years, the gross production of these types of products in the republic was less than that obtained during the 1960's.

The fact that in recent years the cultivation of potatoes and vegetables has declined in our republic, while the demand for some other types of products has increased, will necessarily have an effect on the market prices. For example, in 1979, at markets in Tallinn, Tartu, Pyarnu and Narva, 1 kilogram of potatoes or vegetables on the average cost in excess of three times more than the price asked in 1960. During the period under review, the market prices for fresh fruit and berries were raised by a factor of 2.5 and for meat -- by twofold. The price increases for other products were not as great. At the same time, the state retail prices for the same products remained stable.

In terms of rayons, substantial differences exist in the ratios between the public and private sectors. In early 1981, the population in Vyruskiy Rayon owned 25.6 percent of the overall number of large-horned cattle (including 32.6 percent of the cows) and 8.5 percent of the swine. At the same time, the private sector in Paydeskiy Rayon owned only 8.1 percent of the large-horned cattle (including 9.8 percent of the cows) and 3.2 percent of the swine.

On the average, the number of privately owned cattle declined more rapidly in the more developed agricultural rayons. Thus, during the 1976-1980 period, the number of large-horned cattle owned by citizens in Paydeskiy Rayon decreased by 31.6 percent (including cows by 32.5 percent) and in Khar'yuskiy Rayon -- by 27.7 percent (including cows by 29.4 percent). Judging from all appearances, this is conditioned by the great income of rural residents and by more intense urbanization than in other rayons. During the period under review, the number of large-horned cattle declined least of all in Valgaskiy (15.5 percent) and Khaapsaluskiy (18.3 percent)rayons.

As a result of sociological inquiries, it has been established that the role played by private plots in satisfying the material and social requirements of people is greatly dependent upon the type of populated point. In suburban zones where the territorial concentration of productive forces is relatively high and the public sector of production utilizes agricultural lands extensively, the private plots of citizens are oriented towards field crop husbandry that is closely aligned with the market. The greater the distance from large populated points, the more animal husbandry operations are found in the private sector.

Among the rural population, 91 percent of the families have private plots (see Table 3). The cattle are maintained only in villages, on the central farmsteads of farms and in local centers. But considerable differences are observed here: in villages, 70 percent of the families raise cattle and in small rural centers -- only one out of every five families. The land found in the vicinity of the central farmsteads of kolkhozes and sovkhozes is for the most part improved and thus there are not as many sectors, as was earlier the case, that are not being used for public farming or for the grazing of cattle.

Families living in rural centers quite often can either refuse to maintain cattle or to do it on a different basis (create a common cow barn on the outskirts of the village or maintain only small cattle).

Thirty five owners of orchards and gardens live in villages, 30 percent -- in local centers and kolkhoz or sovkhoz central farmsteads, 20 percent -- in regional or rayon centers and 15 percent -- in Tallinn and its environs. The owners of cattle are likewise broken down into percentages of 69, 26, 4 and 1 respectively.

TABLE 3

Proportion of Population Operating Private Plots
(According to types of populated points, in percentages)

	Types of Populated Points			
	Rayon Centers (Tartu, Vil'yandi and others)	Local Centers and Central Farmsteads of Farms (Elva, Yulenurme and others)	Villages	Average for ESSR
Utilizing land	33.7	69.1	91.0	46.0
Maintaining cattle	1.1	22.4	70.6	19.1

An average of 300 rubles worth of agricultural output is produced annually on the private plots of municipal residents and on the private plot of one rural resident -- more than 1,500 rubles worth.

Administration of the Private Plots of Citizens and Strengthening of Their Relationships With Public Production

Up until now, the administration of the private plots of citizens has been limited mainly to administrative measures, particularly legal control (for example, defining the size of a tract of land and the norms for the maintenance of cattle).

However, experience has proven on more than one occasion that control over the private sector from an administrative standpoint only will not produce the desired results. Priority importance must be attached to the economic methods of control. Indeed, the manner in which the potential of the private plots is employed in the production and procurements of agricultural products is dependent upon economic control.

It seems logical that the principal burden of production control in the private sector of agriculture should rest with the kolkhozes and sovkhozes and not with the procurement or trade organizations, as some people assume. Actually, the private plots in rural areas are closely associated with public agricultural production and are primarily dependent upon it. A prerequisite for the development of economic relationships between them is their common territorial organization and manpower. Fifty three percent of the private plots of citizens are located on the territory of kolkhozes and sovkhozes, 30 percent -- in cities and municipal and rural settlements and 17 percent -- on the land of forestry farms and other enterprises and organizations. According to data obtained from selective studies and evaluations, 80-90 percent of the work being carried out on private plots in the rural areas is being performed by individuals who are simultaneously working in the public sector.

The public and private sectors are closely linked together in the reproduction process and in all of its stages. On the one hand, the public farms aid the population in working their private plots and, on the other hand, the private sector participates in the carrying out of the planned tasks of the public economy. Such relationships have developed rapidly during the past few years. For example, whereas in 1976 the farms procured 7.3 million rubles worth of cattle from the population, by 1980 this indicator had doubled.

Under the new conditions for administering the private plots of citizens, special importance is being attached to social measures aimed at acquainting the population with the aims and value of the private sector. During the 18th Congress of the Communist Party of Estonia, importance was attached to creating a social climate in all areas that will serve to instill in kolkhoz members, manual and office workers and other citizens the feeling that they are performing useful state work by raising livestock and poultry and participating in horticultural and gardening work on their private plots. But, as is well known, the development of such orientation and feelings among the population is a prolonged process and one which could require as many as 10 years.

Taking into account past experience, it can be stated that the private sector of agricultural production is influenced both by objective processes of social development (reduction in the number of rural residents, urbanization of the life style and so forth), taking place by virtue of self-regulation and almost beyond control, and also by subjective actions aimed at limiting or encouraging the management of private plots. Certainly, the private sector is to a large degree subject to the influence of the objective social processes. Thus the subjective actions can only achieve changes of a short-term or local nature.

The specific methods to be employed for solving the problems of the private plots must not be dictated from on high, since the conditions prevailing in the various areas for the development of agricultural production, especially in the private sector, are by no means the same. Based upon the fact that the role played by private plots in agricultural production and in satisfying the material needs of people differs greatly in the various rayons and types of populated points, a regional-differentiated system of regulation should be employed for controlling these farms. This system should be clearly reflected in the legal documents and plans for the economic and social development of the farms and regions. Local initiative aimed at improving the use of each tract of land and each pair of working hands, in the interest of agriculture as a whole, is of extreme importance. Thus conditions should be created, by means of the administrative mechanism, which will raise the interest of workers in ensuring the best use of the resources available in the private sector.

Among the problems concerned with administering the private plots, the greatest amount of attention in recent years has been focused on the problem of improving planning. Here we have in mind the establishment of common plans for meat and milk procurements for both the public and private sectors of agricultural production. Based upon the use of common plans, it would be possible to combine in a better manner the interests of the farms and the population, utilize the agricultural production resources in a more rational manner, procure more agricultural products from the population and, lastly, accomplish all this through the kolkhozes and sovkhozes. At the same time, common plans will make it possible to select the methods to be used for fulfilling a plan and to combine the advantages offered by both large and small-scale production.

The establishment of common territorial plans becomes even more urgent under the conditions imposed by rayon agroindustrial associations. For example, the Talsinskiy and Valmiyerskiy rayon agroindustrial associations in the Latvian SSR have already converted over to common plans.

At the same time, it is known that the private economy does not lend itself very well to planning from on high. Its output can be planned only in accordance with family plans. In order to obtain a better knowledge of them, the farms and village soviets conclude contracts with the population for the production and sale of agricultural products. But the drawing up of contracts requires a flexible and delicate approach. The work must be carried out only on a voluntary basis. Excessive regulation of the private plots and restricting their operations by imposing extreme contractual obligations upon them can only cause harm to them and reduce their output.

Common planning is not meant to imply that production tasks will be established for the private sector. Common planning must first of all ensure that those kolkhozes and sovkhozes which conclude contracts with citizens residing on their territories will be able, in the interest of fulfilling their own contractual obligations, to foresee the requirements of the private sector for young cattle, feed, equipment and other material resources and also to plan the procurements of agricultural products from the population.

It is important for the development of common territorial plans to commence not with procurements but rather with production, in other words, with common balances for the labor, land, feed and other production resources. Since sufficient experience in the development of such balances is still not available, no haste should be displayed in converting over to common territorial plans. The development and implementation of the new system for planning, production, procurements and stimulation require advance preparations, the system must be adapted to the administrative mechanism and all of this requires time. With the introduction of common plans, there must be no reduction in the role being played by village soviets in directing the private sector.

In planning the development of the private plots of citizens at the rayon and farm levels, special importance will be attached to combining economic and social planning (in addition to common economic planning for the various sectors of production). Indeed, the problems of private plots are closely associated with the reorganization of rural settlement and with a number of other aspects of social development. Moreover, consideration should be given to the regional peculiarities of the natural conditions, as reflected in the level of specialization, concentration and production efficiency of farms in a rayon, in the social structure of the population and so forth. In order to avoid errors in planning and administration, use should be made of information obtained as a result of specific economic-statistical and sociological studies.

The decree of the CC CPSU and the USSR Council of Ministers entitled "Additional Measures for Increasing the Production of Agricultural Products on the Private Plots of Citizens" imposes upon the Ministry of Agriculture and its organs in the various areas the task of coordinating the work of organizing the management of the private plots of citizens and providing them with comprehensive assistance. Positive experience in utilizing the production potential of small farms, for the purpose of increasing the efficiency of all agricultural production, has been accumulated for example in the Hungarian People's Republic, where at each goskhoz /state farm/ committees have been created for directing the private plots and also several specialists whose task it is to solve the production and sales problems of the private sector. On some cooperative farms, the private plots appear for the most part as a specialized subunit (branch of production) having its own management and specialists.

Workers have also been singled out at our kolkhozes and sovkhozes for working with the private sector. However, initial observations indicate that these individuals often apply themselves to their new duties as though it was their next public assignment and do not even make an attempt at understanding its essence.

A specialist tasked with solving the problems of the private sector must be able to evaluate in an objective manner the potential of the private plots under local conditions and possess a good knowledge of their production capabilities and the people working on them. The principal obligations of this specialist are as follows:

-- regulating the territorial organization of private land utilization;

-- organizing assistance for the population in managing the private plots and developing appropriate schedules and control over their observance;

-- organizing procurements of the output of the private plots of citizens and concluding contractual agreements;

-- developing measures for utilizing the production resources of the private sector and explaining them among the population;

-- developing programs for specialization and the long-range development of the private sector and combining them with plans for the economic and social development of the public economy;

-- coordinating actions with village soviets, the public organizations of farms and other associated organizations in solving the problems of the private sector;

-- controlling observance of legislation dealing with the private plots of citizens and the fulfillment of contractual obligations and also the solving of controversial problems.

Resources and Potential of Private Plots

The experience of the Hungarian People's Republic and other European socialist countries reveals that as a result of strengthening the relationships between large-scale and small-scale production and achieving a proper ratio between the two production sectors, all production resources can be employed more completely and more efficiently in behalf of agriculture as a whole than would be possible if they were employed on a separate basis.

Let us now briefly examine those additional resources which the private sector makes available to agriculture in our republic.

Labor resources. The public sector of agricultural production is experiencing a very acute manpower shortage. Thus special importance is being attached to ensuring that all available manpower is employed in an efficient manner. During the busy harvest season, more and more reliance must be placed upon receiving assistance from the city. And this occurs at a time when a considerable portion of the able-bodied pensioners residing in the rural areas are unable to find any employment. According to statistical data, more than 25 percent of the rural population in the Estonian SSR (more than 110,000 individuals) have reached pension age. Studies have shown that roughly 80 percent of the pensioners are able-bodied and yet only 35 percent of this potential labor reserve worked full time at their former positions*. For the overwhelming majority of the remaining 65 percent, work on private plots represents the only means for satisfying their requirement for socially useful activity.

The high degree of mechanized labor inherent in large-scale production operations also limits the possiblity of attracting juveniles to work in agriculture. The only work left for schoolchildren is that of pulling weeds and this work lasts for only a month or two each year. During the course of an interrogation by experts, a majority of farm leaders stated that they view the year-round employment of youth on private plots as a means for promoting the labor training and agricultural professional orientation of juveniles and for instilling a love for nature in them.

Municipal residents who are ready to participate in horticultural or gardening work during their free time constitute a substantial man-power reserve. According to data obtained during a 1978 sociological survey, one out of every three municipal families desired to obtain a tract of land. The residents of Tallinn and Tartu in particular are actively striving to obtain land.

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* M. Randveyer. The use of the labor of pension age individuals in the national economy: In the collection: "Subjects of Speeches Delivered During a republic scientific-practical conference entitled: 'Basic Directions for Raising the Efficiency of Use of Labor Resources in the Estonian SSR.'" Tallinn, 1979, p 152.

The private economy does not divert workers from public production (as is sometimes thought), but rather it makes it possible to employ that manpower which cannot be employed in large-scale agricultural production.

Land resources. The most fertile and largest tracts of land are used mainly for large-scale agricultural production. Many small scraps of land upon which powerful items of equipment cannot be used (former farmsteads, swampy regions, forest glades) have been abandoned and for the most part are not cultivated. At best, trees may be planted on them. Thus it develops that on the one hand we carry out land reclamation work in order to make new land available for agriculture, while on the other hand we fail to make use of land that is already available. In the opinion of kolkhoz and sovkhoz leaders and based upon the data obtained from land balances, each farm has roughly 500 hectares of land that is deemed unsuitable for large-scale and modern production but is being used in the private sector. Most of this land is found in the hilly southern portion of Estonia and also in western Estonia. In the interest of ensuring rational use of land as a particularly scarce (including on a global scale) natural resource, all small areas of land must once again be made available for agricultural use, even if only for private plot purposes.

Thousands of hectares of unused land are also to be found on the territories of cities and settlements. A considerable portion of this land can be used without causing harm to the present users. Moreover, they would not have to display as much concern for the weeds or the organization of public services and amenities on these tracts.

It has been established that of the land set aside for use by horticultural collectives, one third is characterized by a low fertility level and the remaining two thirds are generally considered to be unproductive. Nevertheless, as a result of the great enthusiasm and initiative displayed by the population, intensive farming is now being carried out on these tracts and considerable quantities of fruit and vegetables are presently being grown on them. Hence it follows that the private use of land (especially by city-dwellers) represents one means for intensifying land utilization generally.

Labor resources. The results of population surveys have shown that the population has at its disposal very few modern items of light mechanization. Within the republic it is practically impossible to obtain such equipment. Thus, roughly only one percent of the families own small garden tractors. The figure is even smaller in the case of milking units, not to mention dung-loaders. Only one out of every three owners of cattle has a water pump. The population is in somewhat better shape with regard to field crop husbandry implements. One out of every two private farms has watering equipment and one out of every three -- a garden sprinkler and manual plow, one out of every seven -- a lawn mower, juice extractor (a capability of more than 10 liters per hour) and tractor towing equipment and one out of every 20 families -- a motorized field wagon or mowing machine. At the same time, such operations at kolkhozes and sovkhozes as the milking of cows, the delivery of water to the animals, mowing of hay and the harvesting of potatoes have been mechanized almost 100 percent. The difference in working conditions in the public and private sectors is increasing all the time and this is one of the principal causes of the reduction in gross output taking place on the private plots. Some items of equipment which are no longer suitable for use in large-scale production operations (low-power tractors which have been written off, milking units, pumps and so forth) can subsequently be employed successfully in the private sector. However, they are still quite often being relegated to the scrap metal pile inasmuch as no prices are available for use in selling them to the population. The acquisition of horses also involves considerable difficulties -- permission is required from the rayispolkom. It is clear that such restrictions have become obsolete. Within one family there may be several small automobiles, lathes, power saws and so forth. Why then cannot a private plot have a garden tractor or a horse?

The amount of light mechanization equipment found in the private sector is still inadequate. The private plots of citizens must make greater use of the equipment and implements available at kolkhozes and sovkhozes (provided no harm comes to public economy). The more extensive use of such equipment in the private economy would make it possible, to a definite degree, to increase the production of agricultural products on the private plots and to raise the efficiency of agriculture as a whole. The private plots of citizens 1) do not require additional capital investments or 2) substantial expenditures for managerial or administrative work; 3) use equipment that is obsolete from the standpoint of large-scale production operations and also production facilities deemed unsuitable for such operations, culled out cattle and so forth; 4) are capable of making full use of food scraps obtained from the domestic economy, using them as feed or fertilizer; 5) do not contaminate nature and do not require expenditures for the protection of nature.

At the same time, more active use of the technical equipment of the public economy in the private sector is by no means the only method available for improving the utilization of the potential offered by the private plots of citizens for increasing the production of agricultural products and raising its efficiency.

One particular method for raising certain types of cattle appears to be very promising from an economic standpoint -- a farm, on the basis of a contract, will supply young stock to the population for fattening. Here the kolkhozes and sovkhozes will furnish assistance to citizens in acquiring cattle and procuring hay and mixed feed and they will also organize veterinary services, and so forth. In the process, the farms would only be able to satisfy partially the feed requirements of these so-called mini-farms, selling mixed feed and feed additives to the population, for example, on the order of 80 percent and other feeds on the order of 50 percent of the planned consumption of feed, allocated for the corresponding animals and corresponding types of cattle in the public economy. The population will acquire the remaining portion of the feed required from its own private plot or natural pasture and haying lands and also from the domestic economy. The work performed by people can be paid for at a rate for each kilogram of weight increase, based upon the planned production cost or an agreed upon price. Thus the farms are able, during the peak of their field operations, to economize in the use of feed and other material and also financial and labor resources -- with the products produced in the private sector counting towards fulfillment of the plan for the public economy, which additionally should have engaged only in the sale of the cattle. In accordance with this plan, feed production will become industrial in nature, the fattening of cattle -- the private sector and the procurement and processing of the products -- once again industrial. Such

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